Data Validation Checklist
Inorganic Analyses

Project:	35TH Avenue Superfund Site	Project No:	15268508.20000
Laboratory:	TestAmerica – Savannah, GA[1]	Job ID.:	680-85534-5
Method:	SW-846 6010C, 7471A, and 7196A	Associated Samples:	Refer to **Attachment A** (Sample Summary)
Matrix:	Soil	Samples Collected:	12/05/2012
Reviewer:	Nicole Lancaster	Date:	02/18/2013
Concurrence[2]:	Martha Meyers-Lee	Date:	02/26/2013

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
1. Were sample preservation requirements met? If pH of aqueous sample >2 and was not adjusted by laboratory prior to analysis, J- flag positive results and R- flag non-detect results.			✓		
2. Were all COC records signed and integrity seals intact, indicating that COC was maintained for all samples?	✓				
3. Were there any problems noted in laboratory data package concerning condition of samples upon receipt?		✓			
4. Do any soil/sediment samples contain more than 50% water? If yes, then results are to be reported on a wet-weight basis.		✓			
5. Have any technical holding times, determined from date of collection to date of analysis, been exceeded? (Hg: ≤28 days, other metals: ≤6 months; Cr+6: ≤24 hours from extraction). If not, then J- flag positive results and R- flag non-detect aqueous results.		✓			
6. Were results for all project-specified target analytes reported?	✓				
7. Were project-specified Reporting Limits achieved for undiluted sample analyses?		✓		The MDL (0.59 mg/Kg) for arsenic is greater than the Resident Soil RSL (0.39 mg/Kg). A RSL does not exist for total chromium; however, the total chromium MDL (0.5 mg/Kg) is greater than the hexavalent chromium Resident Soil RSL (0.29 mg/Kg).	
8. Were method blank (MB) prepared at the appropriate frequency (one per 20 samples, batch, matrix, and level)?	✓				
9. Was a calibration blank (ICB/CCB) analyzed at the beginning, after every 10th sample, and at the end of each analytical run?	✓				
10. Were target analytes detected in the method and/or calibration blanks?	✓			Target analytes (i.e., As, Ba, Cr, and Se in water, and As, Pb, and Se in soil) were detected at	

[1] SW-846 7471A analysis was subcontracted to TestAmerica of Tampa, FL
[2] Independent technical reviewer

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
				concentrations below the reporting limit during the SW-846 6010C analysis of calibration blanks.	
11. Were target analytes reported in equipment/rinsate blanks analyses above the DL?		✓		According to the QAPP, a rinsate blank is to be collected after each decontamination event, which occurs once per week per the client. A rinsate blank (120412-RB-Bowls + Spoons (680-85402-21)) was collected for the week of December 3, 2012. Target analytes were not detected during the EPA Methods 200.7 and 245.1 analyses of rinsate blank 120412-RB-Bowls + Spoons (680-85402-21), which was collected on 12/04/12 and results reported under Job 680-85402-3. The rinsate blank was not analyzed for hexavalent chromium.	
12. Were contaminants detected in samples below the blank contamination action level? o If blank result > RL, • Flag sample results ≤ RL with a U • Flag positive sample results > RL and ≤10x blank result , as J+ positive results o If blank result ≤RL, • Flag sample results ≤ RL with a U • Flag positive sample results > RL and ≤10x blank result , as J+ positive results		✓		Qualification of data due to the presence of calibration blank contamination is not warranted, as all blank results were significantly less than that detected in the soil samples.	
13. Are there negative laboratory blank results with the absolute value ≤RL? If yes, then flag positive and non-detect sample results that are < 10x absolute blank value as J- and UJ, respectively.		✓			
14. Was a field duplicate analyzed?		✓			
15. Was precision deemed acceptable as defined by the project plans?			✓		
16. Were initial and continuing calibration standards analyzed at the lab/project-specified frequency for each instrument? o 6010C: • ICAL: Blank and one standard • ICV initially, and CCV every 10th sample and at the end of the analytical run • Lower Limit of Quantitation Check Sample (CRI) to be analyzed after establishing lower laboratory reporting limits and as needed o 7471A:	✓			• 6010C: 12/13/12 and 12/18/12. One blank and one standard initially. ICV initially, and CCV every 10 samples and at end of run. CRI after initial calibration blank analysis. • 7471A: 12/14/12. 6-Point ICAL. ICV initially, CCV every 10 samples and at end of run. CRI after initial calibration blank analysis. • 7196A: o 10/01/12. 7-Point ICAL	

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
• ICAL: Blank and five standards • ICV initially, and CCV every 10th sample and at the end of the analytical run o 7196A: • ICAL: Blank and minimum of five standards • ICV initially, and CCV every 10th sample (15th per Method) and at the end of the analytical run				o 12/13/12 and 12/18/12. ICV initially, CCV every 10 samples and at end of run	
17. Were these results within lab/project specifications? o 6010C • ICV/CCV (Criteria: 90-110%R): ▪ If %R <75, then J- flag positive results and R-flag non-detects ▪ If 75-89%R, then J- flag positive results and UJ flag non-detects ▪ If 111-125%R, then J flag positive results ▪ If >125%R, then J+ flag positive results ▪ If >160%R, then R flag positive results • CRI (Method: 70-130%R, Laboratory: 50-150%R; Project: 50-150%R for Sb, Pb, and Tl, and 70-130%R for all other analytes): ▪ If CRI %R <50 (<30% for Sb, Pb, TL), then R flag results ≤ 2x RL and J flag positive results >2x RL ▪ If CRI %R 50-69% (30-49% for Sb, Pb, TL), then J- and UJ flag positive results <2x RL and ND, respectively ▪ If CRI %R >130% and ≤180% (>150%, but ≤200% for Sb, Pb, TL), then J+ flag positive results <2x RL ▪ If CRI %R >180% (>200% for Sb, Pb, TL), then R flag positive results o 7471A • ICV/CCV (Criteria: 80-120%R): ▪ If correlation coefficients <0.995, then J and UJ flag positive and non-detect results. ▪ If %R <65, then J- flag positive results and R-flag non-detects ▪ If 65-79%R, then J- flag positive results and UJ flag non-detects ▪ If 121-135%R, then J flag positive results ▪ If >135%R, then J+ flag positive results ▪ If >170%R, then R flag positive results • CRI (Method: Not required, Laboratory: 50-150%R, Project: 70-130%R): ▪ If CRI %R <50, then R flag results ≤ 2x RL and J flag positive results >2x RL	✓			• Mercury correlation coefficients (raw data): ICAL of 12/14/12, 0.99997 (page 889) • Hexavalent chromium correlation coefficient (raw data): ICAL of 10/01/12, 0.999978 (page 931)	

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
▪ If CRI %R 50-69%, then J- and UJ flag positive results <2x RL and ND, respectively ▪ If CRI %R >130% and ≤180%, then J+ flag positive results <2x RL ▪ If CRI %R >180%, then R flag positive result o 7196A: • ICV/CCV (Criteria: 90-110%R): ▪ If correlation coefficients <0.995, then J and UJ flag positive and non-detect results. ▪ If %R <65, then J- flag positive results and R-flag non-detects ▪ If 65-90%R, then J- flag positive results and UJ flag non-detects ▪ If 110-135%R, then J flag positive results ▪ If >135%R, then J+ flag positive results ▪ If >170%R, then R flag positive results					
18. Was the interference check sample (ICS) analyzed at the beginning of each ICP analytical run?	✓				
19. Are ICS recoveries within 80-120% of the true value? If not, qualify data as follows when native Al, Fe, Ca, and Mg sample concentrations are equal to or greater than the ICS spiking level: o If >120%R (or >true value plus 2x CRQL), J+ flag positive results o If 50-79%R (or less than true value – 2x the CRQL), J- flag positive results and UJ flag non-detects o If <50%R, J- flag positive results and R-flag non-detects	✓				
20. Was a LCS analyzed for each preparation batch (one per 20 samples per matrix and level)?	✓				
21. Did LCS recoveries meet method/laboratory/project (80-120%R) specifications? o Soil: • LCS result > Upper control limit (UCL): J+ flag positive results • LCS result < Lower control limit (LCL): J- flag positive results and UJ flag non-detects o Aqueous: • If <50%R, then J- and R flag positive and ND results, respectively • If 50-LCL%R, J- and UJ flag positive and ND results, respectively • >UCL: J+ Flag positive results	✓				

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
• >150%R: R Flag results					
22. Was the RPD between LCS and LCSD results within method/laboratory /project control limits (≤20%RPD)? If not, J and UJ flag positive and non-detect results, respectively			✓	LCS only	
23. Was a Matrix Spike (MS) and Matrix Spike Duplicate (MSD) analyzed once per preparation batch?		✓			
24. Is the MS and MSD parent sample a project-specific sample?	✓	✓		• 6010C: ○ Prep Batch 259196: 680-85534-5 (HP0012B-CS), MS/MSD ○ Prep Batch 259365: ▪ 680-85534-18 (FM0165A-CS), MS/MSD ▪ 680-85534-53 (HP0067A-CS), MS/MSD ○ Prep Batch 259807: 680-85731-2 (Batch sample), MS/MSD. Lab sample 680-85731-2 is a project-specific sample (HP0124B-CS) and results were reported under Job ID 680-85731-4. • 7471A: ○ Prep Batch 132491: ▪ 680-85534-18 (FM0165A-CS), MS/MSD ▪ 680-85534-53 (HP0067A-CS), MS/MSD ○ Prep Batch 132512: 680-85534-5 (HP0012B-CS), MS/MSD • 7196A: ○ Prep Batch 259389: 680-85534-53 (HP0067A-CS), MS ○ Prep Batch 260022: None	
25. Was a post-digestion spike (PDS) analysis conducted when MS and/or MSD results did not meet control limits (Note: PDS is not required for silver, mercury, or hexavalent chromium)?	✓			• 6010C: ○ 680-85475-25 (Batch sample). Lab sample 680-85475-25 is a project-specific sample (FM0220A-CS) and results were reported under Job ID 680-85475-4. ○ 680-85534-18 (FM0165A-CS) ○ 680-85731-2 (Batch sample). Lab sample 680-85731-2 is a project-specific sample (HP0124B-CS) and results were reported under Job ID 680-85731-4. • 7196A: 680-85534-53 (HP0067A-CS)	
26. For all analytes with sample concentration < 4 x spike		✓		• HP0012B-CS (680-85534-5), 6010C:	J, J+

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
concentration, are spike recoveries within method (6010C: 75-125%R MS/MSD and 80-120%R PDS; 7471A: 80-120%R MS/MSD; 7196A: 85-115%R MS), laboratory (MS, MSD, and PDS: 75-125%R for 6010C/7471 (as applicable) and 80-120%R for 7196), and project (as noted below) specifications? *Only QC results for project samples are evaluated.* If not, ○ 6010C: • If MS %R <30 and PDS %R <75, then J- and R Flag positive and ND results, respectively • If MS %R <30 and PDS %R >75, then J flag positive and UJ flag non-detect results • If MS and MSD %R 30-74 and PDS%R <75, then J- flag positive and UJ flag non-detect results • If MS and MSD %R 30-74 and PDS%R ≥75, then J flag positive and UJ flag non-detect results • If MS, MSD, and PDS %R >125, J+ flag positive results • If MS and MSD %R >125 and PDS %R ≤125, then J flag positive results • If MS and MSD %R <30 and no PDS, then J- flag positive and R-flag non-detect results • If MS and MSD %R 30-74 and no PDS, then J- and UJ flag positive and non-detect results, respectively • If MS and MSD %R >125 and no PDS, then J+ flag positive results ○ 7471A/7196: • If MS %R <30, then J- and R Flag positive and ND results, respectively • If MS and MSD %R 30-LCL, then J- flag positive and UJ flag non-detect results • If MS and MSD %R >UCL, then J+ flag positive results				○ Arsenic MS and MSD %R is 15 and 96 (75-125), respectively. PDS analysis not conducted. Qualification of data is not warranted, because the recovery of the MSD met control limits. ○ Barium MS and MSD %R is 843 and 1836 (75-125), respectively. PDS analysis not conducted. An evaluation of interference is not possible, because the native sample concentration is more than four times greater than the MS/MSD spiking level. ○ Cadmium MS and MSD %R is 25 and 76 (75-125), respectively. PDS analysis not conducted. Qualification of data is not warranted, because the recovery of the MSD met control limits. ○ Chromium MS and MSD %R is -449 and -245%R (75-125), respectively. PDS analysis not conducted. An evaluation of interference is not possible, because the native sample concentration is more than four times greater than the MS/MSD spiking level. ○ Lead MS and MSD %R is -2428 and -1148%R (75-125), respectively. PDS analysis not conducted. An evaluation of interference is not possible, because the native sample concentration is more than four times greater than the MS/MSD spiking level. • FM0165A-CS (680-85435-18), 6010C: ○ Arsenic MS and MSD %R is 104 and 131 (75-125), respectively. PDS recovery met control limits. Qualification of data is not warranted, because the recovery of the MS met laboratory control limits. ○ Barium MS and MSD %R is 582 and 196 (75-125), respectively. PDS recovery met control limits. J flag data because a high recovery is indicative of a positive bias.	

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
				○ Lead MS and MSD %R is 395 and 147%R (75-125), respectively. PDS recovery met control limits. J flag data because a high recovery is indicative of a positive bias. • HP0067A-CS (680-85534-53), 6010C: ○ Arsenic MS and MSD %R is 150 and 153 (75-125), respectively. PDS analysis not conducted. J+ flag data because a high recovery is indicative of a positive bias. ○ Barium MS and MSD %R is 597 and 94%R (75-125), respectively. PDS analysis not conducted. An evaluation of interference is not possible, because the native sample concentration is more than four times greater than the MS/MSD spiking level. ○ Chromium MS and MSD %R is 230 and 299 (75-125), respectively. PDS analysis not conducted. An evaluation of interference is not possible, because the native sample concentration is more than four times greater than the MS/MSD spiking level. ○ Lead MS and MSD %R is -610 and -619%R (75-125), respectively. PDS analysis not conducted. An evaluation of interference is not possible, because the native sample concentration is more than four times greater than the MS/MSD spiking level. • HP0067A-CS (680-85534-53), 7196A: An evaluation of interference is not possible, because the native sample concentration is more than four times greater than the MS spiking level.	
27. Were laboratory/project (≤20%RPD) criteria met for precision during the MS and MSD analysis? *Only QC results for project samples are evaluated.* ○ If RPD >20%, J and UJ flag positive and non-detect results.		✓		• HP0012B-CS (680-85534-5), 6010C: ○ Arsenic @ 31 %RPD (≤20). J Flag ○ Barium @ 25 %RPD (≤20). An evaluation of interference is not possible, because the native sample concentration is more than four times greater than the MS/MSD spiking level. ○ Cadmium @ 32 %RPD (≤20). J Flag	J

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
				○ Chromium @ 37 %RPD (≤20). An evaluation of interference is not possible, because the native sample concentration is more than four times greater than the MS/MSD spiking level. ○ Lead @ 49 %RPD (≤20). An evaluation of interference is not possible, because the native sample concentration is more than four times greater than the MS/MSD spiking level. • FM0165A-CS (680-85435-18), 6010C: ○ Barium @ 54 %RPD (≤20). J Flag ○ Lead @ 51 %RPD (≤20). J Flag • HP0067A-CS (680-85534-53), 6010C: Barium @ 27%RPD (≤20). An evaluation of interference is not possible, because the native sample concentration is more than four times greater than the MS/MSD spiking level.	
28. Was a serial dilution conducted for 6010C/EPA 200.7?	✓			• 6010C: ○ 680-85475-25 (Batch sample). Lab sample 680-85475-25 is a project-specific sample (FM0220A-CS) and results were reported under Job ID 680-85475-4. ○ 680-85534-18 (FM0165A-CS) ○ 680-85731-2 (Batch sample). Lab sample 680-85731-2 is a project-specific sample (HP0124B-CS) and results were reported under Job ID 680-85731-4. • 7471A: ○ 680-85475-37 (CV0707B-CS-SP (sieved)) ○ 680-85534-53 (HP0067A-CS) ○ 680-85731-2 (Batch sample). Lab sample 680-85731-2 is a project-specific sample (HP0124B-CS) and results were reported under Job ID 680-85731-4.	
29. Is the serial dilution parent sample a project-specific sample?	✓	✓			
30. Is the percent difference between the serially diluted result and undiluted result less 10% (for those analytes with native concentrations greater than 50x the DL)? *Only QC results for project samples are evaluated.* ○ If %D >10, J and UJ flag positive and non-detect results,	✓				

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
respectively.					
31. Was a laboratory duplicate analyzed?	✓			7196A: • Prep Batch 259389: 680-85585-16 (Batch sample). Lab sample 680-85585-16 is a project-specific sample (HP0196A-CS-SP) and results were reported under Job ID 680-85585-4. • Prep Batch 260022: 680-85496-3 (Batch sample).	
32. Was the lab duplicate analysis conducted on a project-specific sample?		✓			
33. Were criteria for laboratory/project precision met? *Only QC results for project samples are evaluated.* o If RPD values >20% (35% for soil/sediment) or absolute difference > RL (2x RL for soil/sediment), then J and UJ flag positive and non-detect results, respectively			✓		
34. Were lab comments included in report? If yes, summarize contents or attach a copy of the narrative.	✓			Refer to **Attachment B** (Case Narrative)	

Comments: The data validation was conducted in accordance with the *Non-Industrial Use Property Sampling Event QAPP for the 35th Avenue Removal Site, Birmingham, Alabama, Revision 1* (OTIE, October 2012). The data review process was modeled after the *USEPA Contract Laboratory Program (CLP) National Functional Guidelines (NFG) for Inorganic Data Review* (EPA 540-R-04-004, October 2004). Sample results have been qualified based on the results of the data review process (**Attachment C**). Criteria for acceptability of data were based upon available site information, analytical method requirements, guidance documents, and professional judgment

DV Flag Definitions:

J- The result is an estimated quantity, but the result may be biased low.
J The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+ The result is an estimated quantity, but the result may be biased high.
R The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
U The analyte was analyzed for, but was not detected above the associated level; blank contamination may exist.
UJ The analyte was analyzed for, but was not detected. The reported limit is approximate and may be inaccurate or imprecise.

ATTACHMENT A

SAMPLE SUMMARY

COVER PAGE
METALS

Lab Name: TestAmerica Savannah Job Number: 680-85534-5

SDG No.: 68085534-4

Project: 35th Avenue Superfund Site

Client Sample ID	Lab Sample ID
HP0012B-CS	680-85534-5
FM0080A-CS-SP	680-85534-10
FM0165A-CS	680-85534-18
HP0067A-CS	680-85534-53
FM0165A-CS (sieve)	680-85534-57
FM0080A-CS-SP (sieve)	680-85534-58
FM0067A-CS (sieve)	680-85534-59
HP0012B-CS (sieve)	680-85534-60

Comments:

ATTACHMENT B

CASE NARRATIVE

CASE NARRATIVE
Client: Oneida Total Integrated Enterprises LLC
Project: 35th Avenue Superfund Site
Report Number: 680-85534-5

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 12/7/2012 9:24 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.3º C, 0.4º C and 0.6º C.

SEMIVOLATILE ORGANIC COMPOUNDS (SOLID)

Samples HP0012B-CS (680-85534-5), FM0025C-CS-SP (680-85534-15), FM0165N-CS (680-85534-31), HP0022A-CS (680-85534-49) and CV0442A-CS-SP (680-85534-55) were analyzed for Semivolatile Organic Compounds (Solid) in accordance with EPA SW-846 Method 8270D.

Method(s) 8270D: The initial calibration curve analyzed in batch 260483 was outside method criteria for the following analytes: benzaldehyde and atrazine. As indicated in the reference method, sample analysis may proceed; however, any detection or non-detection for the affected analytes is considered an estimated concentration.

Method(s) 8270D: The following analytes have been identified, in the reference method and/or via historical data, to be poor and/or erratic performers: Famphur, 1,4-Napthaquinone, Methane sulfonate, Benzaldehyde, 1-naphthylamine, 2-naphthylamine, p-Dimethylamino azobenzene, p-phenylenediamine, a,a-dimethylphenethylamine, Methapyriline, 2-picoline (2-methylpyridine), 3,3'-dimethylbenzidine, 3,3'-dichlorobenzidine, Benzidine, Benzaldehyde, Benzoic acid, Dinoseb, Hexachlorophene, Hexachlorocyclopentadiene, o,o,o-triethylphosphoro-thioate. These analytes may have a %D>60% if the average %D of all the analytes in the initial calibration verification (ICV) is 30%.

Method(s) 8270D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and/or precision for several analytes were outside control limits. Refer to QC pages for details.

Method(s) 8270D: Surrogate recovery was outside acceptance limits for the following matrix spike/matrix spike duplicate (MS/MSD) samples: HP0012B-CS (680-85534-5 MS), HP0012B-CS (680-85534-5 MSD). The parent sample's surrogate recovery was within limits. The MS/MSD sample has been qualified and reported.

Method(s) 8270D: Manual integration was performed on the following samples: CV0442A-CS-SP (680-85534-55), FM0025C-CS-SP (680-85534-15), FM0165N-CS (680-85534-31), HP0022A-CS (680-85534-49), HP0012B-CS (680-85534-5).

METALS (ICP)

Samples HP0012B-CS (680-85534-5), FM0080A-CS-SP (680-85534-10), FM0165A-CS (680-85534-18), HP0067A-CS (680-85534-53), FM0165A-CS (sieve) (680-85534-57), FM0080A-CS-SP (sieve) (680-85534-58), FM0067A-CS (sieve) (680-85534-59) and HP0012B-CS (sieve) (680-85534-60) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C.

Method(s) 6010C: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and/or precision for several analytes were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria. Refer to QC report for details.

Method(s) 6010C: Due to the high concentration of barium and lead, the matrix spike / matrix spike duplicate (MS/MSD) for batch 680-259196 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

Method(s) 6010C: Due to the high concentration of barium and lead, the matrix spike / matrix spike duplicate (MS/MSD) for batch 680-259365 could not be evaluated for accuracy and precision. The associated laboratory control sample (LCS) met acceptance criteria.

Method(s) 6010C: Due to the high concentration of barium, chromium, and lead, the matrix spike / matrix spike duplicate (MS/MSD) for batch 680-259807 could not be

TOTAL MERCURY

Samples HP0012B-CS (680-85534-5), FM0080A-CS-SP (680-85534-10), FM0165A-CS (680-85534-18), HP0067A-CS (680-85534-53), FM0165A-CS (sieve) (680-85534-57), FM0080A-CS-SP (sieve) (680-85534-58), FM0067A-CS (sieve) (680-85534-59) and HP0012B-CS

(sieve) (680-85534-60) were analyzed for total mercury in accordance with EPA SW-846 Method 7471A.

HEXAVALENT CHROMIUM

Sample HP0067A-CS (680-85534-53) was analyzed for hexavalent chromium in accordance with EPA SW-846 Method 3060A/7196A.

Method(s) 7196A: The matrix spike (MS) recoveries for batches 259749 and 260296 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

ATTACHMENT C

QUALIFIED SAMPLE RESULTS

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: HP0012B-CS
Lab Sample ID: 680-85534-5
Lab Name: TestAmerica Savannah
Job No.: 680-85534-5
SDG ID.: 68085534-4
Matrix: Solid
Date Sampled: 12/05/2012 11:45
Reporting Basis: DRY
Date Received: 12/07/2012 09:24
% Solids: 82.0

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	22	2.4	0.72	mg/Kg		J	1	6010C
7440-39-3	Barium	280	1.2	0.37	mg/Kg			1	6010C
7440-43-9	Cadmium	5.5	0.61	0.12	mg/Kg		J	1	6010C
7440-47-3	Chromium	98	1.2	0.61	mg/Kg			1	6010C
7439-92-1	Lead	240	1.2	0.65	mg/Kg			1	6010C
7782-49-2	Selenium	3.2	3.0	1.2	mg/Kg			1	6010C
7440-22-4	Silver	0.72	1.2	0.12	mg/Kg	J		1	6010C

Sample results have been qualified by URS in accordance with the Non-Industrial Use Property Sampling Event QAPP for the 35th Avenue Removal Site, Birmingham, Alabama, Revision 1 (OTIE, October 2012)

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: FM0080A-CS-SP
Lab Sample ID: 680-85534-10
Lab Name: TestAmerica Savannah
Job No.: 680-85534-5
SDG ID.: 68085534-4
Matrix: Solid
Date Sampled: 12/05/2012 15:41
Reporting Basis: DRY
Date Received: 12/07/2012 09:24
% Solids: 80.5

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	7.8	2.5	0.73	mg/Kg			1	6010C
7440-39-3	Barium	59	1.2	0.37	mg/Kg			1	6010C
7440-43-9	Cadmium	0.66	0.61	0.12	mg/Kg			1	6010C
7440-47-3	Chromium	35	1.2	0.61	mg/Kg			1	6010C
7439-92-1	Lead	51	1.2	0.65	mg/Kg			1	6010C
7782-49-2	Selenium	3.1	3.1	1.2	mg/Kg	U		1	6010C
7440-22-4	Silver	1.2	1.2	0.12	mg/Kg	U		1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: FM0165A-CS
Lab Sample ID: 680-85534-18
Lab Name: TestAmerica Savannah
Job No.: 680-85534-5
SDG ID.: 68085534-4
Matrix: Solid
Date Sampled: 12/05/2012 08:58
Reporting Basis: DRY
Date Received: 12/07/2012 09:24
% Solids: 85.9

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	7.6	2.1	0.61	mg/Kg			1	6010C
7440-39-3	Barium	34	1.0	0.31	mg/Kg		J	1	6010C
7440-43-9	Cadmium	0.52	0.52	0.10	mg/Kg	U		1	6010C
7440-47-3	Chromium	12	1.0	0.52	mg/Kg			1	6010C
7439-92-1	Lead	12	1.0	0.55	mg/Kg		J	1	6010C
7782-49-2	Selenium	1.1	2.6	1.0	mg/Kg	J		1	6010C
7440-22-4	Silver	1.0	1.0	0.099	mg/Kg	U		1	6010C

Sample results have been qualified by URS in accordance with the Non-Industrial Use Property Sampling Event QAPP for the 35th Avenue Removal Site, Birmingham, Alabama, Revision 1 (OTIE, October 2012)

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: HP0067A-CS
Lab Sample ID: 680-85534-53
Lab Name: TestAmerica Savannah
Job No.: 680-85534-5
SDG ID.: 68085534-4
Matrix: Solid
Date Sampled: 12/05/2012 15:00
Reporting Basis: DRY
Date Received: 12/07/2012 09:24
% Solids: 78.1

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	22	2.4	0.71	mg/Kg		J+	1	6010C
7440-39-3	Barium	200	1.2	0.36	mg/Kg			1	6010C
7440-43-9	Cadmium	0.92	0.60	0.12	mg/Kg			1	6010C
7440-47-3	Chromium	50	1.2	0.60	mg/Kg			1	6010C
7439-92-1	Lead	230	1.2	0.64	mg/Kg			1	6010C
7782-49-2	Selenium	2.1	3.0	1.2	mg/Kg	J		1	6010C
7440-22-4	Silver	1.2	1.2	0.12	mg/Kg	U		1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: FM0165A-CS (sieve) Lab Sample ID: 680-85534-57

Lab Name: TestAmerica Savannah Job No.: 680-85534-5

SDG ID.: 68085534-4

Matrix: Solid Date Sampled: 12/05/2012 08:58

Reporting Basis: DRY Date Received: 12/07/2012 09:24

% Solids: 86.0

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	7.9	2.2	0.65	mg/Kg			1	6010C
7440-39-3	Barium	40	1.1	0.33	mg/Kg			1	6010C
7440-43-9	Cadmium	0.55	0.55	0.11	mg/Kg	U		1	6010C
7440-47-3	Chromium	12	1.1	0.55	mg/Kg			1	6010C
7439-92-1	Lead	13	1.1	0.59	mg/Kg			1	6010C
7782-49-2	Selenium	2.8	2.8	1.1	mg/Kg	U		1	6010C
7440-22-4	Silver	1.1	1.1	0.11	mg/Kg	U		1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: FM0080A-CS-SP (sieve)
Lab Sample ID: 680-85534-58
Lab Name: TestAmerica Savannah
Job No.: 680-85534-5
SDG ID.: 68085534-4
Matrix: Solid
Date Sampled: 12/05/2012 15:41
Reporting Basis: DRY
Date Received: 12/07/2012 09:24
% Solids: 77.8

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	6.3	2.4	0.72	mg/Kg			1	6010C
7440-39-3	Barium	71	1.2	0.36	mg/Kg			1	6010C
7440-43-9	Cadmium	0.27	0.61	0.12	mg/Kg	J		1	6010C
7440-47-3	Chromium	26	1.2	0.61	mg/Kg			1	6010C
7439-92-1	Lead	54	1.2	0.64	mg/Kg			1	6010C
7782-49-2	Selenium	1.3	3.0	1.2	mg/Kg	J		1	6010C
7440-22-4	Silver	1.2	1.2	0.12	mg/Kg	U		1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: FM0067A-CS (sieve) Lab Sample ID: 680-85534-59

Lab Name: TestAmerica Savannah Job No.: 680-85534-5

SDG ID.: 68085534-4

Matrix: Solid Date Sampled: 12/05/2012 15:00

Reporting Basis: DRY Date Received: 12/07/2012 09:24

% Solids: 80.6

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	25	2.4	0.71	mg/Kg			1	6010C
7440-39-3	Barium	290	1.2	0.36	mg/Kg			1	6010C
7440-43-9	Cadmium	1.1	0.60	0.12	mg/Kg			1	6010C
7440-47-3	Chromium	71	1.2	0.60	mg/Kg			1	6010C
7439-92-1	Lead	210	1.2	0.64	mg/Kg			1	6010C
7782-49-2	Selenium	3.2	3.0	1.2	mg/Kg			1	6010C
7440-22-4	Silver	1.2	1.2	0.12	mg/Kg	U		1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: HP0012B-CS (sieve) Lab Sample ID: 680-85534-60

Lab Name: TestAmerica Savannah Job No.: 680-85534-5

SDG ID.: 68085534-4

Matrix: Solid Date Sampled: 12/05/2012 11:45

Reporting Basis: DRY Date Received: 12/07/2012 09:24

% Solids: 76.4

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7440-38-2	Arsenic	20	2.2	0.66	mg/Kg			1	6010C
7440-39-3	Barium	330	1.1	0.34	mg/Kg			1	6010C
7440-43-9	Cadmium	6.3	0.56	0.11	mg/Kg			1	6010C
7440-47-3	Chromium	100	1.1	0.56	mg/Kg			1	6010C
7439-92-1	Lead	190	1.1	0.59	mg/Kg			1	6010C
7782-49-2	Selenium	2.6	2.8	1.1	mg/Kg	J		1	6010C
7440-22-4	Silver	0.44	1.1	0.11	mg/Kg	J		1	6010C

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: HP0012B-CS
Lab Sample ID: 680-85534-5
Lab Name: TestAmerica Tampa
Job No.: 680-85534-5
SDG ID.: 68085534-4
Matrix: Solid
Date Sampled: 12/05/2012 11:45
Reporting Basis: DRY
Date Received: 12/07/2012 09:24
% Solids: 82.0

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-97-6	Mercury	0.12	0.035	0.014	mg/Kg			1	7471A

Sample results have been qualified by URS in accordance with the Non-Industrial Use Property Sampling Event QAPP for the 35th Avenue Removal Site, Birmingham, Alabama, Revision 1 (OTIE, October 2012)

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: FM0080A-CS-SP
Lab Sample ID: 680-85534-10
Lab Name: TestAmerica Tampa
Job No.: 680-85534-5
SDG ID.: 68085534-4
Matrix: Solid
Date Sampled: 12/05/2012 15:41
Reporting Basis: DRY
Date Received: 12/07/2012 09:24
% Solids: 80.5

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-97-6	Mercury	0.045	0.031	0.012	mg/Kg			1	7471A

Sample results have been qualified by URS in accordance with the Non-Industrial Use Property Sampling Event QAPP for the 35th Avenue Removal Site, Birmingham, Alabama, Revision 1 (OTIE, October 2012)

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: FM0165A-CS
Lab Sample ID: 680-85534-18
Lab Name: TestAmerica Tampa
Job No.: 680-85534-5
SDG ID.: 68085534-4
Matrix: Solid
Date Sampled: 12/05/2012 08:58
Reporting Basis: DRY
Date Received: 12/07/2012 09:24
% Solids: 85.9

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-97-6	Mercury	0.015	0.031	0.012	mg/Kg	J		1	7471A

Sample results have been qualified by URS in accordance with the Non-Industrial Use Property Sampling Event QAPP for the 35th Avenue Removal Site, Birmingham, Alabama, Revision 1 (OTIE, October 2012)

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: HP0067A-CS
Lab Sample ID: 680-85534-53
Lab Name: TestAmerica Tampa
Job No.: 680-85534-5
SDG ID.: 68085534-4
Matrix: Solid
Date Sampled: 12/05/2012 15:00
Reporting Basis: DRY
Date Received: 12/07/2012 09:24
% Solids: 78.1

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-97-6	Mercury	0.15	0.035	0.014	mg/Kg			1	7471A

Sample results have been qualified by URS in accordance with the Non-Industrial Use Property Sampling Event QAPP for the 35th Avenue Removal Site, Birmingham, Alabama, Revision 1 (OTIE, October 2012)

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: FM0165A-CS (sieve) Lab Sample ID: 680-85534-57

Lab Name: TestAmerica Tampa Job No.: 680-85534-5

SDG ID.: 68085534-4

Matrix: Solid Date Sampled: 12/05/2012 08:58

Reporting Basis: DRY Date Received: 12/07/2012 09:24

% Solids: 86.0

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-97-6	Mercury	0.035	0.035	0.014	mg/Kg	U		1	7471A

Sample results have been qualified by URS in accordance with the Non-Industrial Use Property Sampling Event QAPP for the 35th Avenue Removal Site, Birmingham, Alabama, Revision 1 (OTIE, October 2012)

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: FM0080A-CS-SP (sieve) Lab Sample ID: 680-85534-58

Lab Name: TestAmerica Tampa Job No.: 680-85534-5

SDG ID.: 68085534-4

Matrix: Solid Date Sampled: 12/05/2012 15:41

Reporting Basis: DRY Date Received: 12/07/2012 09:24

% Solids: 77.8

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-97-6	Mercury	0.045	0.034	0.014	mg/Kg			1	7471A

Sample results have been qualified by URS in accordance with the Non-Industrial Use Property Sampling Event QAPP for the 35th Avenue Removal Site, Birmingham, Alabama, Revision 1 (OTIE, October 2012)

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: FM0067A-CS (sieve) Lab Sample ID: 680-85534-59

Lab Name: TestAmerica Tampa Job No.: 680-85534-5

SDG ID.: 68085534-4

Matrix: Solid Date Sampled: 12/05/2012 15:00

Reporting Basis: DRY Date Received: 12/07/2012 09:24

% Solids: 80.6

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-97-6	Mercury	0.19	0.037	0.015	mg/Kg			1	7471A

Sample results have been qualified by URS in accordance with the Non-Industrial Use Property Sampling Event QAPP for the 35th Avenue Removal Site, Birmingham, Alabama, Revision 1 (OTIE, October 2012)

1A-IN
INORGANIC ANALYSIS DATA SHEET
METALS

Client Sample ID: HP0012B-CS (sieve) Lab Sample ID: 680-85534-60

Lab Name: TestAmerica Tampa Job No.: 680-85534-5

SDG ID.: 68085534-4

Matrix: Solid Date Sampled: 12/05/2012 11:45

Reporting Basis: DRY Date Received: 12/07/2012 09:24

% Solids: 76.4

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
7439-97-6	Mercury	0.13	0.037	0.015	mg/Kg			1	7471A

Sample results have been qualified by URS in accordance with the Non-Industrial Use Property Sampling Event QAPP for the 35th Avenue Removal Site, Birmingham, Alabama, Revision 1 (OTIE, October 2012)

1B-IN
INORGANIC ANALYSIS DATA SHEET
GENERAL CHEMISTRY

Client Sample ID: HP0067A-CS
Lab Sample ID: 680-85534-53
Lab Name: TestAmerica Savannah
Job No.: 680-85534-5
SDG ID.: 68085534-4
Matrix: Solid
Date Sampled: 12/05/2012 15:00
Reporting Basis: DRY
Date Received: 12/07/2012 09:24
% Solids: 78.1

CAS No.	Analyte	Result	RL	MDL	Units	C	Q	DIL	Method
18540-29-9	Chromium, hexavalent	12	12	3.6	mg/Kg	U		10	7196A

Sample results have been qualified by URS in accordance with the Non-Industrial Use Property Sampling Event QAPP for the 35th Avenue Removal Site, Birmingham, Alabama, Revision 1 (OTIE, October 2012)